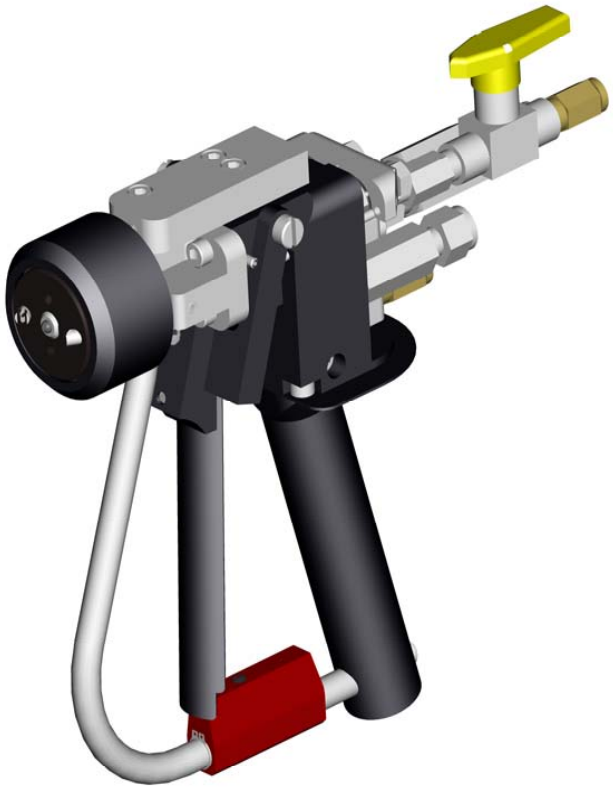
USER MANUAL

GlasCraft
DISPENSING EXCELLENCE

Indy-X

External-Mix Low Emission Dispense Gun



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Introduction

About This Manual

Before operating, maintaining or servicing any **GlasCraft** system, read and understand all of the technical and safety literature provided with **GlasCraft** products. If you do not have the proper or related manuals and safety literature for your **GlasCraft** system, contact your GlasCraft distributor or **GlasCraft,** Inc.

In this **GlasCraft** technical and safety publication, the following advisories will be provided where
appropriate:

NOTE
Is information about the procedure in progress.

CAUTION
Is imperative information about equipment protection.

WARNING
Is imperative information about personal safety.

The information in this document is intended only to indicate the components and their normal working relationship typical use. Each assembly should be directed by a **GlasCraft** distributor or made from the **GlasCraft** assembly instructions provided.

This manual provides information for the assembly, operation, maintenance and service of this **GlasCraft** product as used in a typical configuration. While it lists standard specifications and procedures, some deviations may be found.

In order to provide our users with the most up-to-date technology possible, we are constantly seeking to improve products. If technological change occurs after a product is on the market, we will implement that technology in future production and, if practical, make it available to current users as a retrofit, up-date or supplement. If you find some discrepancy between your unit and the available documentation, contact your **GlasCraft** distributor to resolve the difference. **GlasCraft,** Inc. reserves the right to change or modify this product as it deems necessary.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier troubleshooting.

MODEL 23590-00 INDY-X DISPENSE GUN

Impingement Dispense Tips

The J5 tip is furnished with the Spray Gun.
For more information, contact your distributor, or GlasCraft Service Department.

Material Airless Spray Tip Options:

LPA2-147-XXXX. (Requires P/N's LPA2-123S and LPA2-124S.)

Repair Parts Kits:

Part Number	Description	Qty.
A-63-19A	O-RING	2
A-78	VALVE SEAT	1
C-315	WASHER	1
CC-116	O-RING	1
CJ-136	O-RING	2
CJ-137	O-RING	1
LPA2-121G	MATERIAL NOZZLE SEAL	1
13076-06	O-RING	3
13867-03	O-RING	1
13867-05	O-RING	1
13867-07	O-RING	3
13867-09	O-RING	2
20508-00	MATERIAL PACKING DISK	10
20588-00	RETAINING SEAL	1
21044-05	O-RING	3
7554-04	O-RING	1
7554-05	O-RING	1

Part Number	Description	Qty.
E-135	MATERIAL SEAT ASSY.	1
20506-00	MATERIAL NEEDLE(ONE PIECE)	2
20507-00	PACKING RETAINER	2
20511-00	MATERIAL NEEDLE COLLET	2
23537-00	VALVE NEEDLE SPRING	2
23544-00	SEAT RETAINER ASSY	1
23595-00	INDY-X GUN SEAL KIT	1

Impingement Dispense Tip Reference Chart

Part Number	Orifice	Min. Width (in.)	Max. Width (in.)	Min. Output (lbs.)	Max Output (lbs.)
23005- C4	0.040	7	16.5	5.4	10.02
C5	0.050	8.5	15.5	6.36	12.23
C6	0.060	7	17	7.31	11.01
C7	0.070	7	13	8.53	10.58
C8	0.080	10	12.5	10.28	13.03
C9	0.090	7.5	10	11.49	12.36
E4	0.040	6	21	4.01	9.16
E5	0.050	11	21	5.71	10.23
E6	0.060	6.5	18.5	5.48	11.48
E7	0.070	7.5	15	7.96	10.58
E8	0.080	6	15.5	8.61	12.03
E9	0.090	7.5	15	9.61	12.36
G4	0.040	6	24	4.01	9.16
G5	0.050	10.5	32	4.31	10.23
G6	0.060	8.5	24	5.48	11.48
G7	0.070	6.5	25.5	6.43	10.58
G8	0.080	10	22	8.61	12.03
G9	0.090	7	16	8.53	12.36
J4	0.040	7	36.5	4.01	9.16
J5	0.050	7	30.5	4.31	10.23
J6	0.060	10	28	5.48	11.48
J7	0.070	7.5	26	6.43	10.58
J8	0.080	10	24	8.61	12.03
J9	0.090	11	20	8.53	10.58
K4	0.040	9.5	38	4.01	9.16
K5	0.050	12	34	4.31	10.23
K6	0.060	16	34	5.48	11.48
K7	0.070	13	30	6.43	10.58
K8	0.080	8	28	6.21	12.03
K9	0.090	11	25	7.88	12.36
M4	0.040	11	61	4.01	9.16
M5	0.050	13	38	4.31	10.23
M6	0.060	9	38	4.33	11.48
P4	0.040				

Indy-X

Impingement Dispense Tip Reference Chart

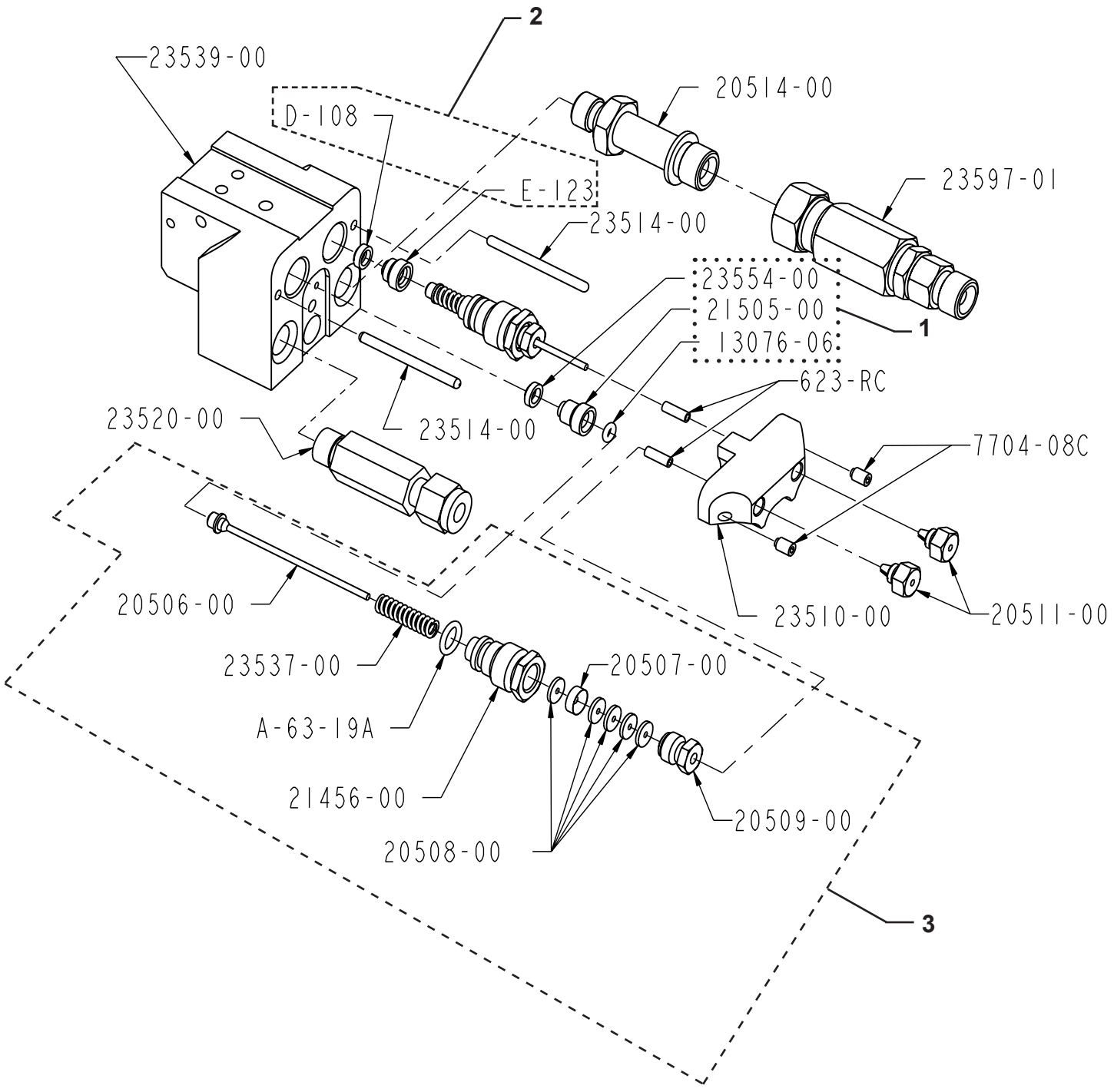
Part Number	Orifice
23047-J1	.012
J2	.014
J3	.022
M1	.012
M2	.014
M3	.022
P1	.012
P2	.014
P3	.022

Airless Dispense Tip Reference Chart

Part Number	Orifice
LPA2-147-1525	0.015
1540	0.015
1550	0.015
1565	0.015
1825	0.018
1840	0.018
1850	0.018
1865	0.018
2125	0.021
2140	0.021
2150	0.021
2165	0.021
2325	0.023
2340	0.023
2350	0.023
2365	0.023
2625	0.026
2640	0.026
2650	0.026
2665	0.026
3125	0.031
3140	0.031
3150	0.031
3165	0.031
3625	0.036
3640	0.036
3650	0.036
3840	0.038
3850	0.038
4325	0.043
4340	0.043
4350	0.043
4365	0.043
5225	0.052
5240	0.052
5250	0.052
5265	0.052
LPA2-147-6225	0.062
6240	0.062
6250	0.062
6265	0.062
7240	0.072
7250	0.072
7840	0.078

Note:
Use p/n: LPA2-123S and p/n: LPA2-124S when using LPA2-147-XXXX and 23047-XX series spray tips.

23590-00 Indy-X Dispense Gun

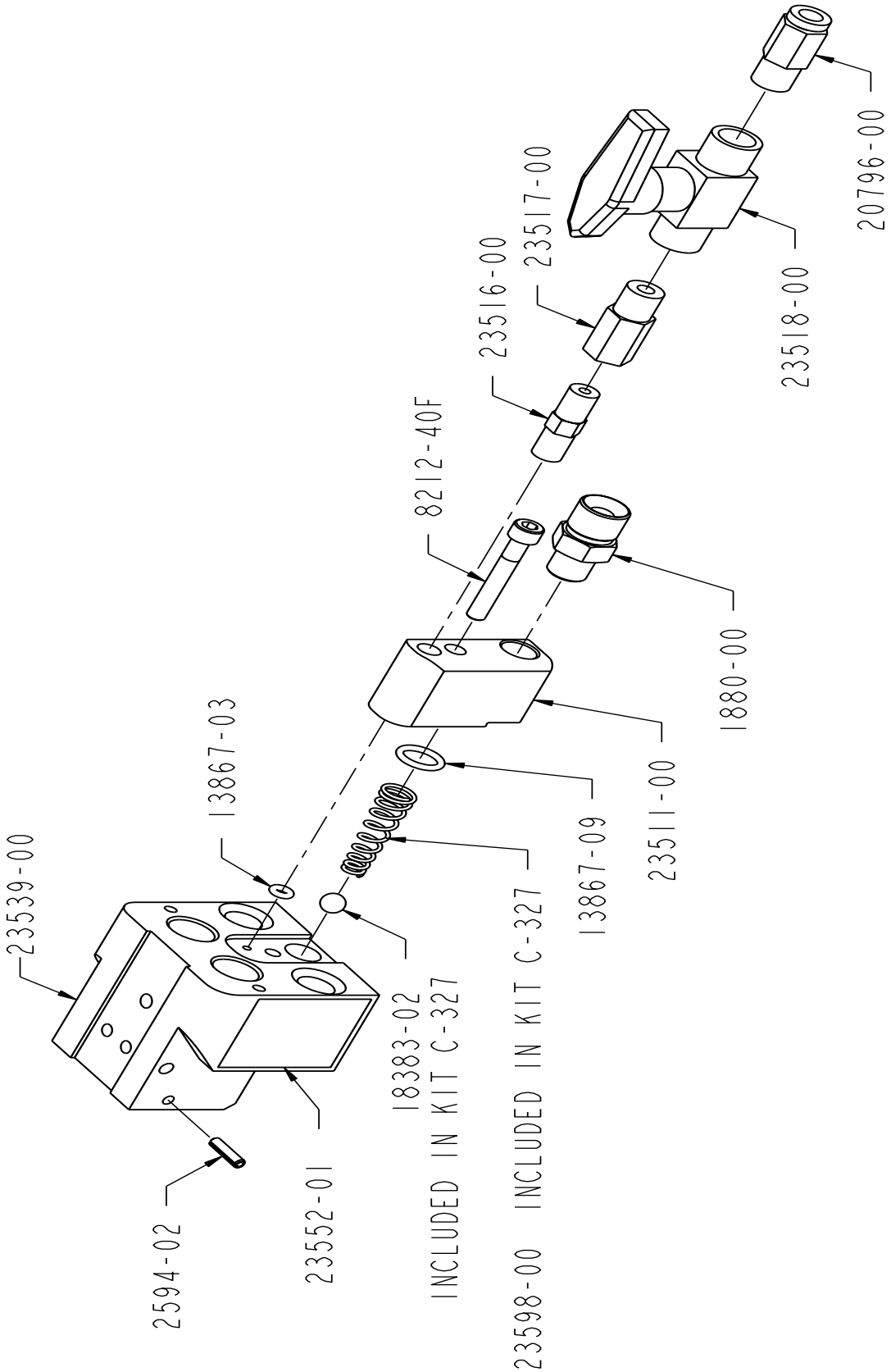


1) Catalyst seat assembly p/n: 23544-00

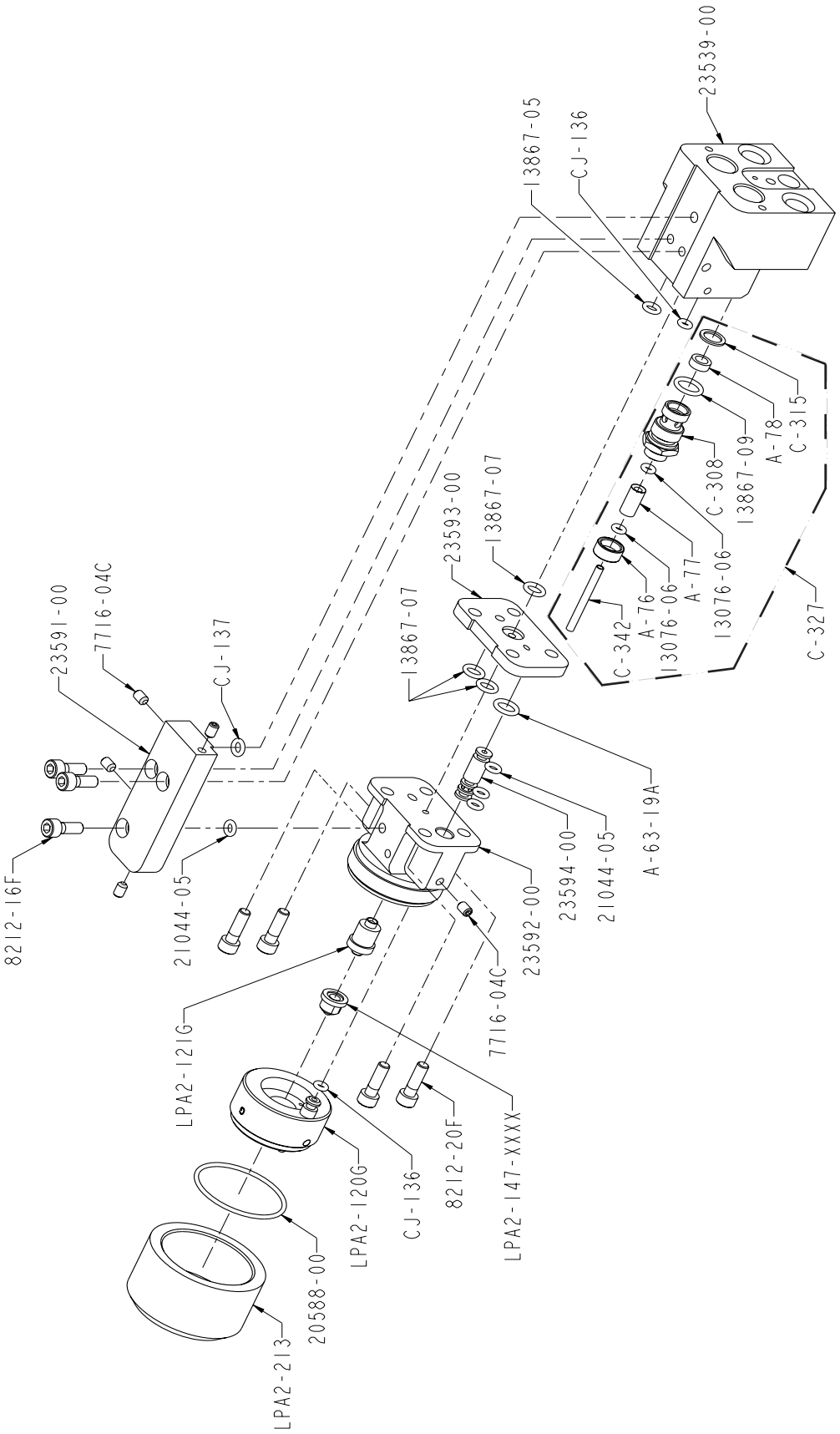
2) Material seat assembly p/n: E-135

3) Material needle valve assembly p/n: 23545-00

23590-00 Indy-X Dispense Gun

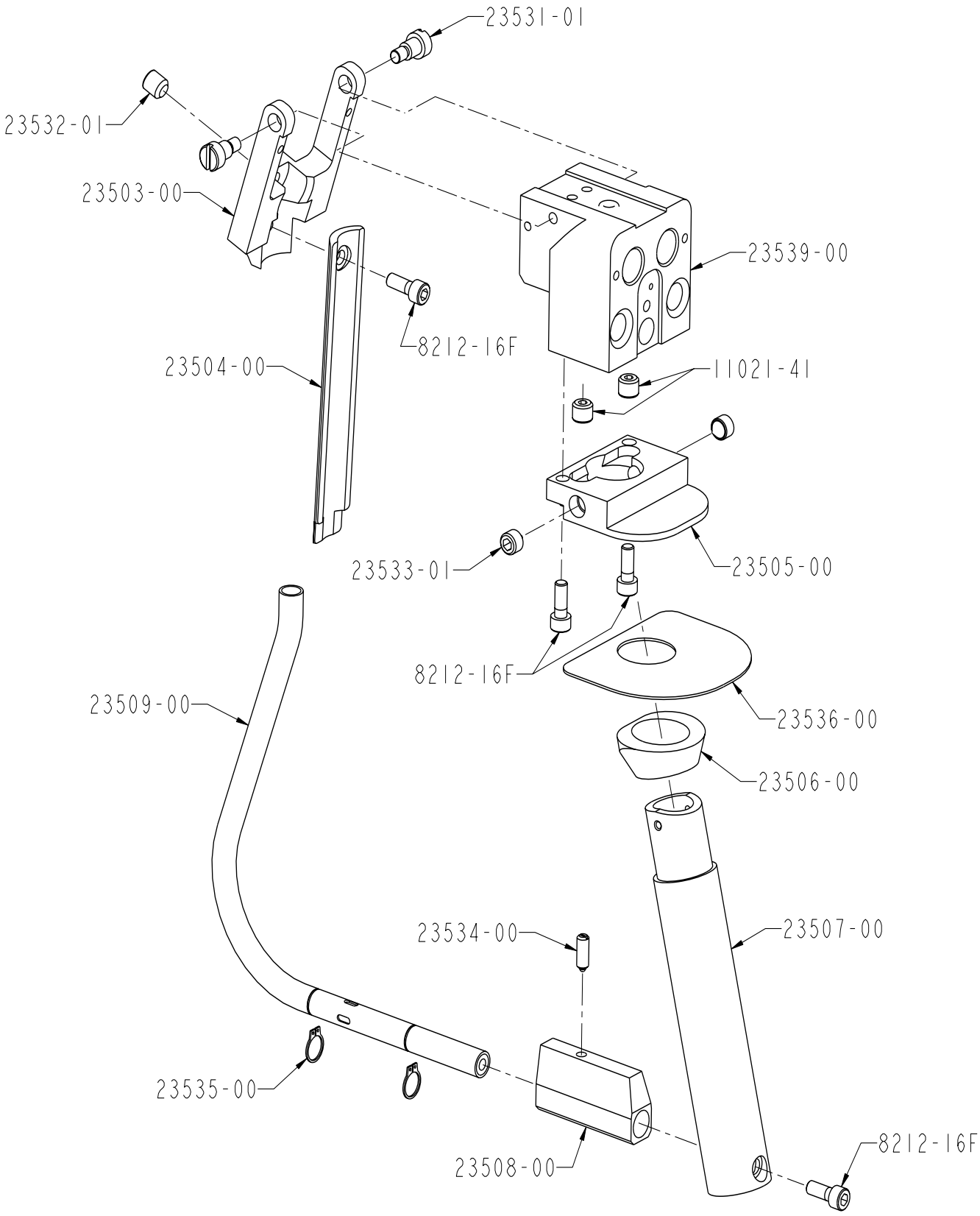


23590-00 Indy-X Dispense Gun



Note:
Use p/n: LPA2-123S and p/n: LPA2-124S when using LPA2-147-XXXX and 23047-XX series spray tips.

23590-00 Indy-X Dispense Gun



23590-00 Indy-X Parts List

Part Number	Description	Qty.
11021-41	PIPE PLUG	2
13076-06	O-RING	1
13867-03	O-RING	1
13867-05	O-RING	1
13867-07	O-RING	3
13867-09	O-RING	1
15845-01	BALL DRIVER	1
20506-00	MATERIAL NEEDLE	2
20507-00	PACKING RETAINER	2
20508-00	MATERIAL DISK PACKING	10
20509-00	MATERIAL PACKING NUT	2
20511-00	MATERIAL NEEDLE COLLET	2
20514-00	GUN HOSE FITTING	1
20588-00	RETAINING SEAL	1
20796-00	CONNECTOR FITTING	2
21044-05	O-RING	4
21456-00	MATERIAL PACKING HOUSING	2
21505-00	MATERIAL VALVE SEAT RETAINER	1
23503-00	INDY 2 GUN TRIGGER	1
23504-00	TRIGGER PULL HANDLE	1
23505-00	GUN HANDLE REST	1
23506-00	INDY 2 HANDLE ADAPTER	1
23507-00	INDY 2 GUN HANDLE	1
23508-00	INDY 2 TRIGGER LOCK	1
23509-00	TRIGGER GUARD	1
23510-00	NEEDLE GUARD	1
23511-00	AIR SOLVENT ADAPTER	1
23514-00	GUN PIN	2
23515-00	CATALYST RESTRICTOR	1
23516-00	NIPPLE FITTING	1
23517-00	NIPPLE REDUCER FITTING	1
23518-00	2-WAY BALL VALVE	1
23520-00	CATALYST FITTING	1
23531-01	SHOULDER SCREW	2
23532-01	SET SCREW	1
23533-01	SET SCREW	2
23534-00	DETENT PIN	1
23535-00	SNAP RING	2
23536-00	HANDLE REST	1
23537-00	VALVE NEEDLE SPRING	2
23539-00	MAIN GUN BLOCK	1

Part Number	Description	Qty.
23552-01	DECAL	2
23554-00	CATALYST SEAT WASHER	1
23591-00	AIR ADAPTER	1
23592-00	FRONT HEAD	1
23593-00	HEAD ADAPTER	1
23594-00	AIR ASSIST INSERT	1
23597-01	HOSE FITTING	1
2594-02	ROLL PIN	1
623-RC	TUBING	0.063
7704-08C	SET SCREW	2
7716-04C	SET SCREW	5
8212-16F	SCREW	7
8212-20F	SCREW	4
8212-40F	SCREW	1
A-63-19A	O-RING	3
C-327	AIR VALVE ASSEMBLY	1
CC-116	O-RING	1
CJ-136	O-RING	2
CJ-137	O-RING	1
D-108	MATERIAL SEAT WASHER	1
E-123	MAT'L VALVE SEAT RETAINER	1
GC-1367	USER MANUAL	1
GC-1379	FRP SPRAY SET-UP MANUAL	1
LPA2-120G	GEL CATALYST AIR-ASSIST ASSY	1
LPA2-121G	MATERIAL NOZZLE SEAL	1
LPA2-213	HEAD END CAP	1

Operating Your Polyester System Safely

1.0 Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safely.

This system has been specifically designed for use of Polyester Resin ,Gel-Coat ,and Methyl Ethyl Ketone Peroxides (MEKP) applications. Other formulations or blends considered for use in this equipment is strictly prohibited without the expressed consent by GlasCraft Inc.

GlasCraft, Inc. cannot eliminate every danger nor foresee every circumstance that might cause an injury during equipment operation. Some risks, such as the high pressure liquid stream that exits the spray tip, are inherent to the nature of the machine operation and are necessary to the process in order to manufacture the end-product. For this reason, ALL personnel involved in polyester operations should read and understand the Safety Manual. It is very important for the safety of employees involved in the operation that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation.

Each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures.GlasCraft hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program. GlasCraft recommends this Safety Manual remain on your equipment at all times for your personnel safety.

In addition to the manual, GlasCraft recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

- 1910.94 Pertaining to ventilation.
- 1910.106 Pertaining to flammable liquids.
- 1910.107 Pertaining to spray finishing operations,

particularly Paragraph (m) Organic Peroxides and Dual Component Coatings.

Other standards and recognized authorities to consult are the National Fire Protection Association (NFPA) bulletins as follows:

- NFPA No. 33 Chapter 14, Organic Perox ides and Dual Component Materials
- NFPA No. 63 Dust Explosion Prevention
- NFPA No. 70 National Electrical Code
- NFPA No. 77 Static Electricity
- NFPA No. 91 Blower and Exhaust System
- NFPA No. 654 Plastics Industry Dust Hazards
- Type of Fire Extinguishing equipment recommended :

Fire Extinguisher -- code ABC ,rating number 4a60bc. Extinguishing Media -- Foam, Carbon Dioxide, Dry Chemical, Water Fog.

Copies of the above bulletins are available, at a nominal charge from:

National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210

Research Report No. 11 of the American Insurance Association deals with “Fire, Explosion and Health Hazards of Organic Peroxides”. It is published by...

American Insurance Association
85 John Street
New York, New York 10038

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

1.2 Personnel Safety Equipment

GlasCraft recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:

GlasCraft recommends that the user consult the state and local regulations established for all Safety equipment listed.

2.0 Material Safety

2.1 Hazards Associated with Laminating Operations

The major hazards which should be guarded against in polyester laminating operations are those associated with:

1. The flammability and explosion dangers of the catalyst normally used - Methyl Ethyl Ketone Peroxide (MEKP).

2. The flammability dangers of clean-up solvents sometimes used (GlasCraft recommends that clean-up solvents be nonflammable), and of resin diluents used, such as styrene.

3. The flammability dangers of catalyst diluents, if used. (GlasCraft recommends that catalyst not be diluted.)

4. The flammability dangers of the uncured liquid resins used.

5. The combustibility dangers of the cured laminate, accumulations of overspray, and laminate sandings.

6. The toxicity dangers of all the chemicals used in laminating operations with respect to ingestion, inhalation and skin and eye hazards.

2.2 Catalyst

(Methyl Ethyl Ketone Peroxide)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the "unstable (reactive)" chemicals presents a definite challenge to the plastics industry. the highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal.

MEKP is not a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called "MEKP") and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of the MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.

Contamination with promoters, or materials containing promoters, such as laminate sandings, or with any readily oxidizable material, such as brass or iron, will cause exothermic "redox" reactions which can become explosive in nature. Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT).

Researchers have reported measuring pressure rates-of-rise well in excess of 100,000 psi per second when certain MEKP's reach their SADT. (For comparison, the highest pressure rate-of-rise listed in NFPA Bulletin No. 68, "Explosion Venting", is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second.)

Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts.

If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result from improper handling of MEKP, especially in regards to contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use and disposal of MEKP and other hazardous materials used in the laminating operation.

In addition, users should make every effort to:

1. Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.

2. Keep MEKP away from heat, sparks and open flames.

3. Prevent contamination of MEKP with other materials, including polyester overspray and sandings, polymerization accelerators and promoters, brass, aluminum and non-stainless steels.

4. Never add MEKP to anything that is hot, since explosive decomposition may result.

5. Avoid contact with skin, eyes and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves and eye protection must be worn. Fire fighting equipment should be at hand and ready.

6. Avoid spillage, which can heat up to the point of self-ignition.

7. Repair any leaks discovered in the catalyst system immediately, and clean up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.

8. Use only original equipment or equivalent parts from GlasCraft in the catalyst system (i.e.: hoses, fittings, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.

9. Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank. such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to which the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

2.3 Clean-Up Solvents and Resin Diluents

WARNING

A hazardous situation may be present in your pressurized fluid system!
Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pumps, heaters, filters, valves, spray guns, tanks, etc.)
The explosion could cause serious injury, death and/or substantial property damage.
Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon Solvents.
Some GlasCraft spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon Solvents.

There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.

1. **The presence of HHC solvents.** 1,1,1-Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing.

2. **Aluminum or Galvanized Parts.** Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.

3. **Equipment capable of withstanding pressure.** When HHC solvents contact aluminum or galva nized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions. When all three elements are present, the result can be an extremely violent explosion. the reaction can be sustained with very little aluminum or galvanized metal; **any amount of aluminum is too much.**

The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEK, alcohol, and toluene, may render the inhibitors ineffective.

The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.

Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys which will safely prevent the chemical reaction under all circumstances.

Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many State Implementation Plans as Volatile Organic Compounds (VOC's), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.

WARNING

Do not use Halogenated Hydrocarbon solvents in pressurized fluid systems having aluminum or galvanized wetted parts.

NOTE

GlasCraft is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in a closed fluid system.
TAKE IMMEDIATE ACTION...
Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.

Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

GlasCraft recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.

If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.

Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.

You should allow only enough solvent for one day's use in your laminating area.

"NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.

Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No. 91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.

Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

2.4 Catalyst Diluents

GlasCraft spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. GlasCraft, therefore, recommends that diluents not be used. This avoids the possible contamination which could lead to an explosion due to the handling and mixing of MEKP and diluent. In addition, it eliminates any problems from the diluent being contaminated through rust particles in drums, poor quality control on the part of the diluent supplier, or any other reason. If, however, diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferably, the supplier should premix the catalyst to prevent possible "on the job" contamination while mixing.

WARNING

If diluents are not used, it should be remembered that catalyst spillage, gun, hose and packing leaks are potentially more hazardous, since each drop contains a higher concentration of catalyst, and therefore will react quicker with overspray and the like.

2.5 Uncured Liquid Resin

Resin should be stored in a well ventilated building at least 50 feet from your main plant. In addition, the storage temperature should not exceed 75 degrees F.

In your main plant, store only enough resin for one day's production.

"NO SMOKING" signs must be posted and observed in all areas where resin is stored and/or used.
Refer to OSHA Section 1910.94, 1910.106, 1910.107 and consult resin suppliers for more detailed information.

Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No. 91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.

Resin must never be stored in an area where MEKP is stored or used.

Open-top drums should not be used, due to possible contamination and possible catalyzation from overspray or spillage of MEKP into drum, which could not only severely damage the polyester spray system, but might also cause the drum of resin to ignite.

When spraying test patterns or purging the gun, always remove the test samples and waste from the building immediately and dispose of them in accordance with your material supplier's recommendations.

2.6 Cured Laminate, Overspray and Laminate Sandings Accumulation

Remove all accumulations of overspray, FRP sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire, In addition, the fire would burn hotter and longer.

Floor coverings, if used, should be non-combustible.

Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, oversprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent this spillage and leakage, you should:

1. Maintain your GlasCraft System. Check the gun several times daily for catalyst and resin packing or valve leaks. REPAIR ALL LEAKS IMMEDIATELY.

2. Never leave the gun hanging over, or lying inside the mold. A catalyst leak in this situation would certainly damage the part, possible the mold, and may cause a fire.

3. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the gun and fittings. Replace if wear or weakness is evident or suspected.

4. Arrange the hoses and fiberglass roving guides so that the fiberglass strands DO NOT rub against any of the hoses at any point. If allowed to rub, the hoses may be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also the material may spew onto personnel in the area.

2.7 Toxicity of Chemicals

GlasCraft recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No. 33, Chapter 14, and NFPA No. 91.

Contact your chemical supplier(s) and determine the toxicity of the various chemicals used, as well as the best methods to prevent injury, irritation and danger to personnel.
Also determine the best methods of first aid treatment for each chemical used in your plant.

2.8 Treatment of Chemical Injuries

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, GlasCraft recommends the use of protective clothing and eye wear in using polyester systems.

However, users should be prepared in the event of such an injury. Precautions include:

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or is swallowed.

2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.

3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals may have.

WARNING
Contact a doctor immediately in the event of any injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting the doctor.

Fast treatment of the outer skin and eyes that contact such chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment, however, may be incorrect for some chemicals; that is why you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

NOTE
Refer to your System User Manual for complete and detailed operating instructions and service information.

3.0 Equipment Safety

WARNING
GlasCraft suggest that personnel safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels).
This equipment should only be operated or serviced by technically trained personnel!!!

WARNING
Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT THE GUN AT OR NEAR ANOTHER PERSON.
(TREAT THE GUN AS IF IT WERE A LOADED PISTOL)

3.1 Emergency Stop Procedures

The following steps should be followed in order to stop the machinery in an emergency situation:

1. The yellow air valve located where the air enters the machine should be pushed to the “OFF” (closed) position. To do this simply push on the lever protruding out the side of the valve. This will also cause all the system air to bleed out of the system in a matter of a few seconds thus making the system incapable of operating.

NOTE
Step 2 is a precautionary step and should be followed whenever the emergency stop valve is activated to the stop mode. Failure to do so will damage regulators and components when reactivating to the ON position.

2. Turn all system regulators to OFF (counter-clockwise) position.

NOTE
Verify that the Catalyst Pressure Relief Line and the Resin Return Line are secured before relieving catalyst and resin fluid pressure.

3. Catalyst pressure in the Slave Pump can be eliminated by rotating the yellow valve handle on the Slave Pump 90 degrees to the “ON” position.

NOTE
The “ON” position the valve handle is parallel (in line) with the valve body .
The “OFF” position the valve handle is perpendicular (across) the valve body.

4. Resin pressure can be eliminated by rotating the yellow handled valve on the bottom of the fluid filter 90 degrees. Place a container under the bottom of the valve to catch any resin that is ejected from the valve.

3.2 General Safety Precautions

The following general safety precautions should be followed when servicing or operating this equip ment to ensure operator safety:

- When filling catalyst container, protective eye equipment must be worn to protect against injuries.
- Always maintain adequate material levels to prevent loss of prime during system operation.
- At the first sign of a leak, stop operations, activate emergency stop valve, back off air regulators and open all bleed valves to remove all pressure from the gun, hoses, pump, catalyst system and any other liquid containers.
- Solvent Pot Pressure Relief:
- Turn Solvent Pressure Regulator counter clock wise (ccw) until regulator handle stops.
- Open Petcock valve to bleed Solvent Tank pressure completely.
- Catalyst Injector Pressure Relief:
- Refer to Catalyst Injector User Manual for proper pressure relief.
- Never operate a Fiberglass System with fixed Pinch Point guards removed from system.
- Do not operate Fiberglass Chopper Guns with out protective covers in place.
- Correct packing or valve seat leaks immediately.
- Never immerse the gun in any liquid.
- Periodically check operation of catalyst alarms to make sure they are operation properly.
- Frequently check condition of hoses. Replace worn hoses and other parts before they fail.
- Catalyst fluid nozzles and seals MUST be in good condition at all times to prevent internal and external leaks. Inspect periodically and replace as needed, or at intervals of three to four months. Use catalyst nozzle seal only once to prevent possible leakage of catalyst into air passages of gun.
- Make absolutely certain that all pressure has been relieved from the gun before disassembly from the hoses before loosening any fittings; from the material or catalyst pump before disassembly; from the catalyst injector before disassembly or filling.
- If you have any doubt that fluid pressure is relieved, call your GlasCraft distributor or GlasCraft, Inc. before proceeding with any disassembly.
- Use only genuine GlasCraft replacement parts when repairing your system. Substitutes may not be the proper material or may not fit the system and may cause dangerous operating conditions and the failure of other components.

3.3 Grounding

Grounding an object means providing an adequate path for the flow of an electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables.

In any event, the grounding means should have the lowest possible electrical resistance. Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. GlasCraft recommends grounding straps be made of AWG No. 18 stranded wire as a minimum, and that larger wire be used where possible. NFPA Bulletin No. 77 states that the electrical resistance of such a leakage path may be as low as 1 meg ohm (106 ohms) but that resistances as high as 10,000 meg ohms will produce an adequate leakage path in some cases.

Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity.

For further information, see **National Fire Protection Association** (NFPA) 77 titled “Recommended Practice on Static Electrical”. Refer especially to Section 7-7 titled “Spray Application of Flammable and Combustible Materials”. Check with local codes and authorities for other specific standards that might apply to your application.

Never use hard materials such as wire, pins, etc., To clear a plugged gun. Hard materials can cause permanent damage. Dab with a bristle brush, blow backwards with air until clear while wearing a protective eye shield. Repeat as many times as necessary.
Do not perform any maintenance or repairs until you have followed the precautions stated above. If you, as an equipment operator or supervisor, do not feel that you have been adequately trained or instructed and that you lack the technical knowledge to operate or perform maintenance on a piece of glascraft equipment, please call glascraft, inc. Before operating or performing maintenance on the equipment.

If you have any questions regarding the above precautions or any service or operation procedures, call your glascraft distributor or glascraft, inc.

NOTICE

All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind expressed or implied. The user should not assume that all safety measures are indicated or that other measures are not required.

GlasCraft
DISPENSING EXCELLENCE

5845 WEST 82nd STREET, SUITE 102
INDIANAPOLIS, INDIANA 46728 U.S.A.
PHONE (317) 875-5592 FAX (317) 875-5456

Model 23590-00

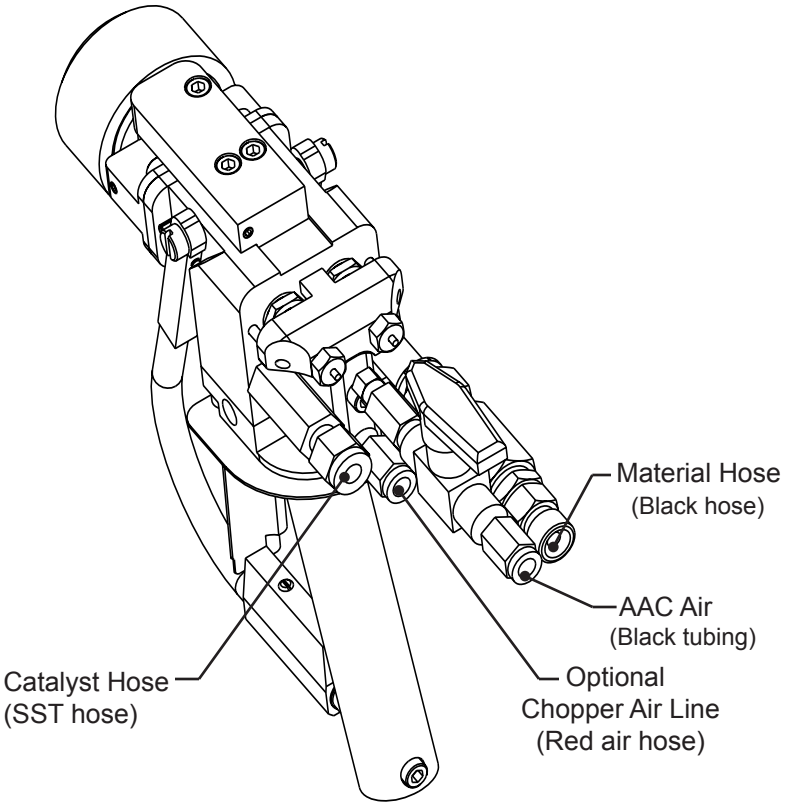
How the Gun Works

The Indy-X Gun is an evolutionary design that reduces operator fatigue through reduced gun weight, enhanced maneuverability.

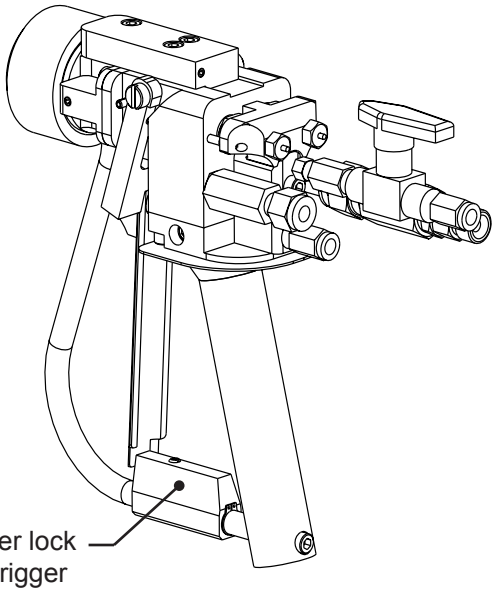
The Indy-X Gun is a straight-forward, simple design, having fewer parts and o-rings than any other gun in its class.

The Indy-X Gun is designed to be a true high volume low pressure gun. The ports in the gun are large to allow for less back pressure and easy flow of material. This is further achieved with large material hoses, and properly setting the material pump pressure, matching a spray tip that will deliver desired output and useable spray pattern, not atomizing the material. The gun is very user friendly.
Example: Because of the variables involved, material viscosity, sheer of material ambient temperature, required output, your pressure setting will vary.

Hose Attachment



Lock Trigger



Daily Maintenance

WARNING

Before attempting to perform any maintenance on this Spray Gun - ***Relieve All Fluid and Air Pressures!***

To relieve fluid and air pressures:

1. *Push down Yellow slide valve, P/N 21402-00 to bleed off air to system.*
2. *Open P/N 21228-00 on catalyst pump to recirculation position.*
3. *Open P/N 21192-00 on bottom of material pump.*
4. *Verify the Trigger Lock is in the Locked position.*

It is recommended that the following service be performed on a daily basis.

1. The Gun is built at the factory with, P/N 21222-00 Lubricate. This is a water soluble lubricate, not affected by most solvents. When maintaining the Gun, it is recommended that this is used as outlined on “Lubricate Page”. Clean the Gun using a brush and a appropriate clean solvent.

2. Inspect Gun Valve Needle shafts, making certain they are clean and free of over-spray or foreign-material. Clean and lubricate as required.

3. Inspect the Gun Packings, Needles and Seats for catalyst or material leakage. If leakage does occur, correct at once! If material leaks (or drips) out of the nose of the gun, this indicates that there is a bad needle/seat condition. If material leaks out of the back of the needle stem, this indicates loose or worn packings and may be repacked by tightening the packing nuts, P/N 20509-00 1/8 turn each until leak stops. Test trigger to verify spring can return needle to seat.

4. Maintain a reasonable stock level of “wear” items such as Packings, Seals and O-Rings

5. If Spray Gun is leak tested, be sure to dry gun thoroughly.

6. **Never** leave Spray Gun immersed in any liquid.

Parts Replacement Procedure

Indy Guns

WARNING
Before attempting to perform any maintenance on this Dispense Gun - Relieve All Fluid and Air Pressures! See previous page.

CAUTION
Due to the different O-Ring materials and lubricants used in the Dispense Guns...

NEVER SUBMERGE OR SOAK ANY dispense GUN IN ANY TYPE OF SOLVENT!

Submerging or soaking any Dispense Gun will immediately void the Gun warranty.

1. Read each procedure entirely before beginning and refer to the illustration views as needed.
2. Flush and clean all passages as they become accessible.
3. Clean all parts before assembly.
4. Replace all O-Rings, Valves and Seals with new parts from the appropriate kit.
5. Inspect all parts for wear or damage and replace as required with new GENUINE GlasCraft REPLACEMENT PARTS from your authorized GlasCraft Distributor.
6. Inspect all threads for wear or damage and replace as required.
7. Tighten all threaded parts securely, but not excessively, upon assembly.
8. O-rings can fail if subjected to any of the following conditions.
    a. Swelling - coming in contact with solvent or oil from compressor.
    b. Cut - sharp, unlubricated edge in gun head or handle.
    c. Sticky - contaminated with oil, water, solvent, catalyst, resin or gel-coat.
    d. Chaffing - dry sliding surfaces (needs lubrication).
9. Lightly lubricate all O-Rings with petroleum jelly.
10. Check all springs for resilience. They should return quickly to their original (new) length.
11. Clean the exterior of the Gun and Hoses with an appropriate, clean solvent and cloth or brush.

Hose Removal

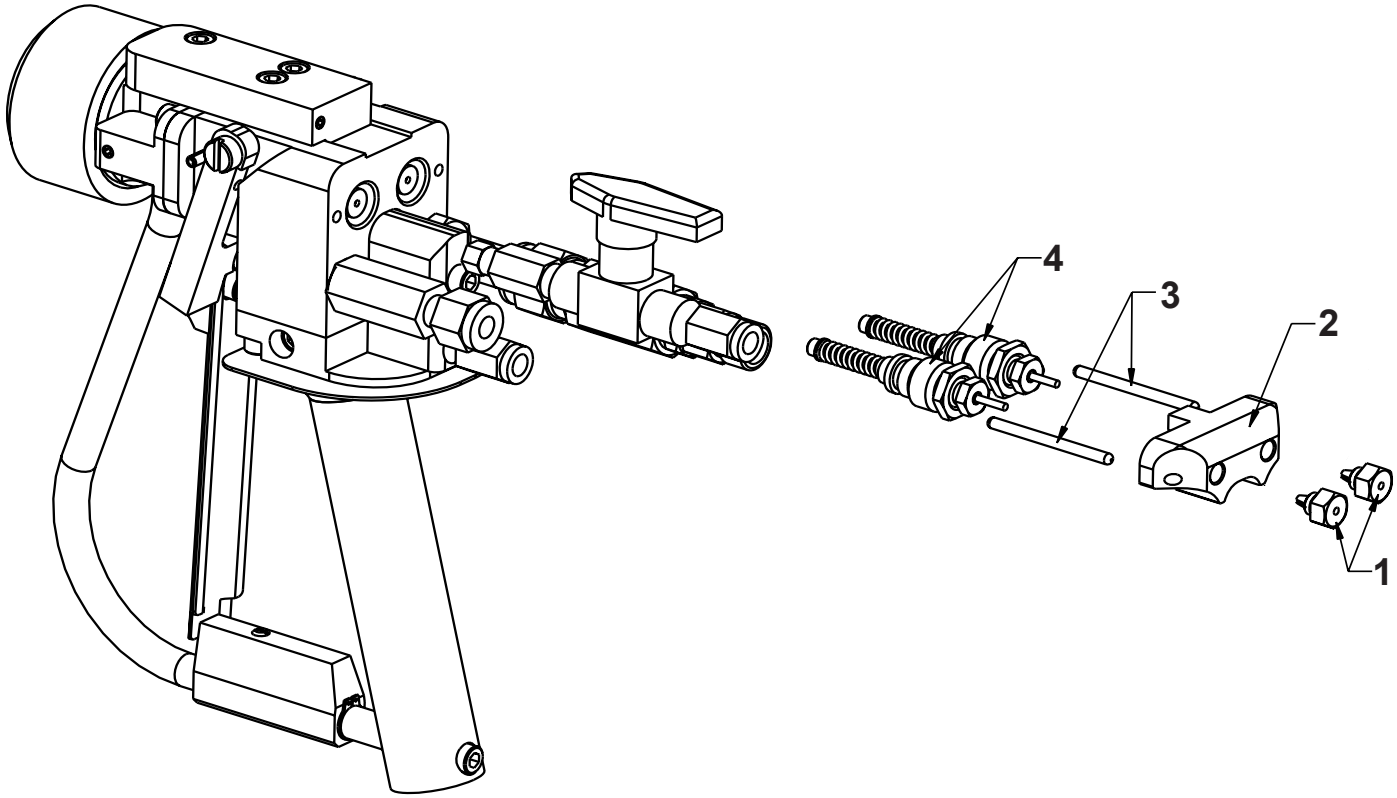
1. Remove Resin Hose with an 11/16” wrench. (Hold delivery tube with an 11/16 wrench.)
2. Remove Catalyst Hose with a 9/16” wrench. (Hold delivery tube with a 9/16 wrench.)
3. Remove Air / Flush Block with an 5/32” Allen wrench. Remove block, watch for spring and ball from Air Valve

NOTE
Tape a clean polyethylene bag over the end of each Hose to prevent spillage and to keep clean.

GUN SERVICE

Needle & Pin Removal Procedures

1. Remove needle collets.
2. Remove needle guard.
3. Remove pins.
4. Remove needle assemblies.



GUN SERVICE

Component Service Procedures

NOTE
If Packing, P/N 20507-00 and Packing Disks, P/N 20508-00 are removed from Needle and Packing Housing, GlasCraft recommends that these parts always be replaced with NEW packings and packing disks.

1. Ensure spring is seated on needle shoulder.

2. Insert needle into the packing housing .

3. Lubricate a teflon packing disk with red lube and slide into housing.

4. Lubricate the retainer with red lube and slide it into the housing with the flat side entering the housing first. (Concave side entering the housing last).

5. Lubricate the remaining (4) teflon disc and slide them into the housing.

6. a. Lubricate the tip of the packing nut, screw it into the housing and hand tighten until it stops.

b. use a 3/8in. wrench on packing nut and a 9/16in. wrench on the packing housing and tighten 1/16 to 1/4 turn.

c. back off then tighten a little more.

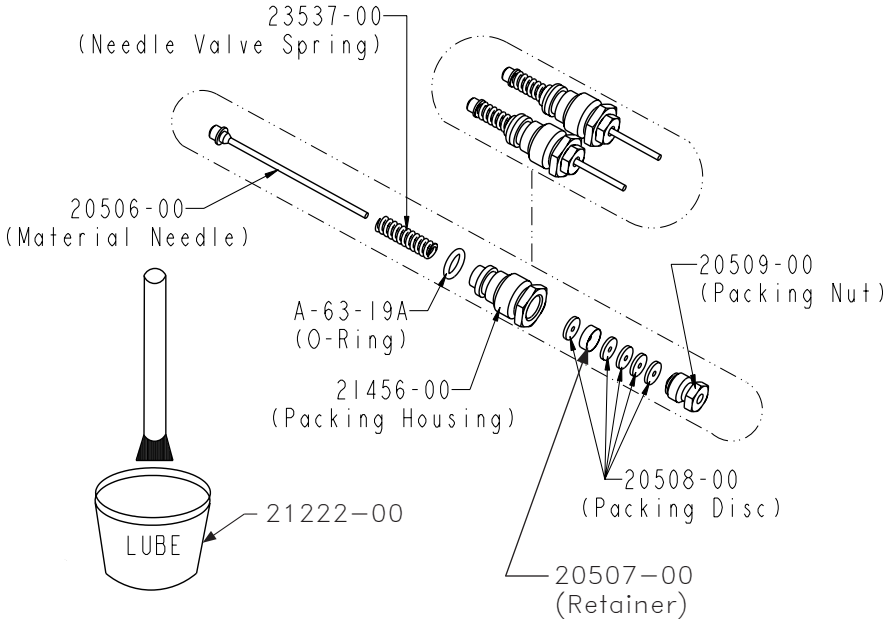
d. back off then tighten a little more.

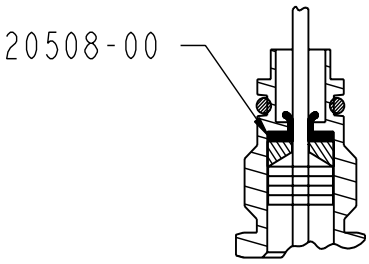
e. back off then snug tight until you hear a “POP”.

Needle test

1. Put the tip of the needle on a hard surface and press down on the assembly to compress the spring. Release the assembly and the needle should return to it’s original position.

2. Turn the assembly over and place the *back* end of the needle on a hard surface and press down until it stops. Lift up on the spring and lock inside the housing to ensure that the seal has extruded through the hole and surrounds the needle as shown.





GUN SERVICE

Needle & Pin Reassemble Procedures

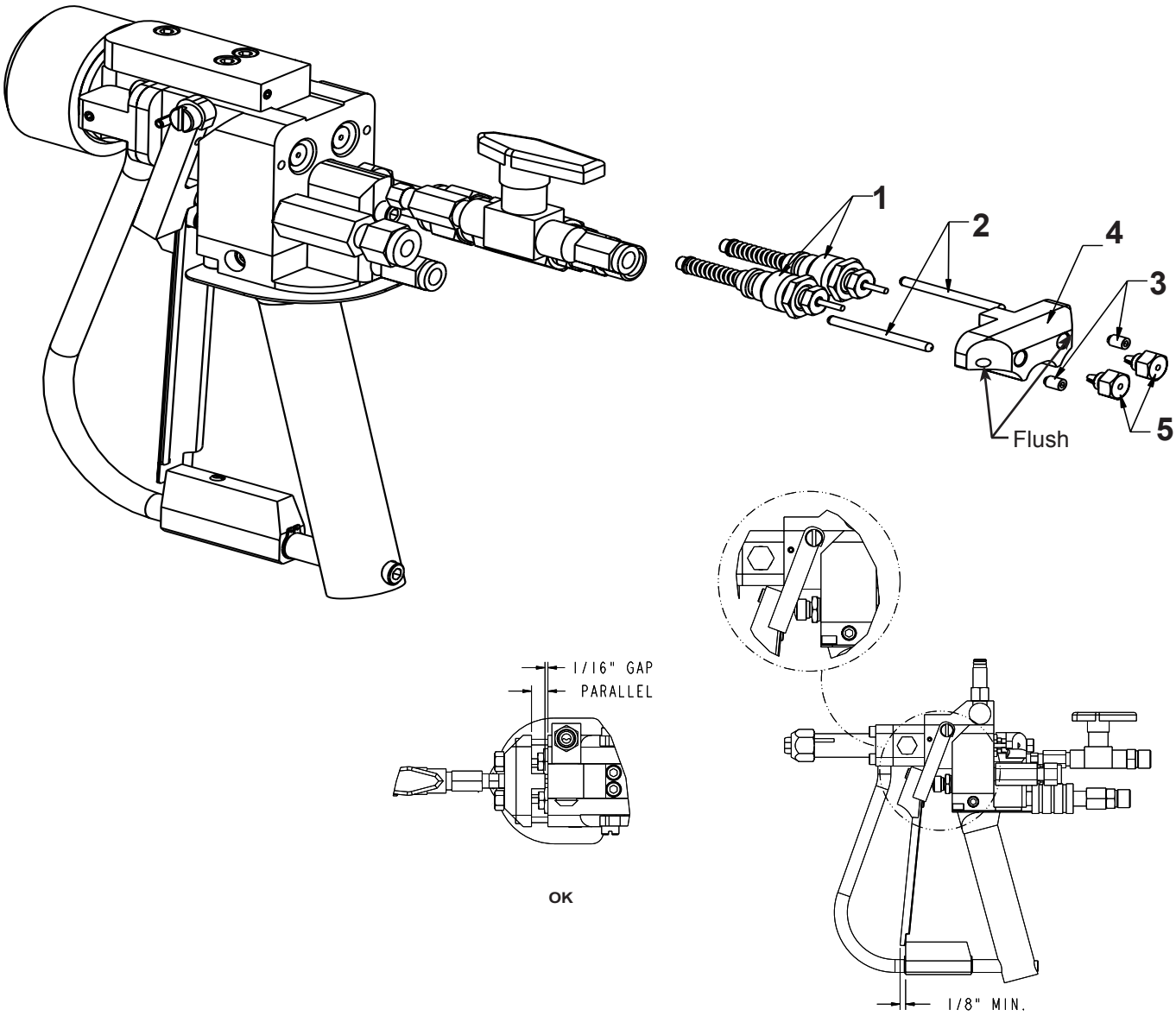
1. Reassemble the needle assemblies to the gun body. Lubricate the o-rings & use teflon tape on the threads.

2. Make sure the gun pins are lubricated and slide them into the gun block and can be seen between the gun block and the back side of the trigger and they both are exposed at the back of the gun block near the catalyst and resin needles.

3. If adjustment is needed, lock-tite set screws and make them approximately flush with the needle guard using a 5/64in hex key. Fine adjustment will be done after reassembly.

4. Slide the needle guard over the catalyst and resin needles.

5. Attach the collet nuts to exposed needles and hand tighten. *Before tightening with a wrench place the needle guard 1/16in. (1.66mm) gap between the gun block and needle guard and tighten using a 3/8in. wrench while holding in place with your hand. Be sure to tighten the collet nuts evenly.*

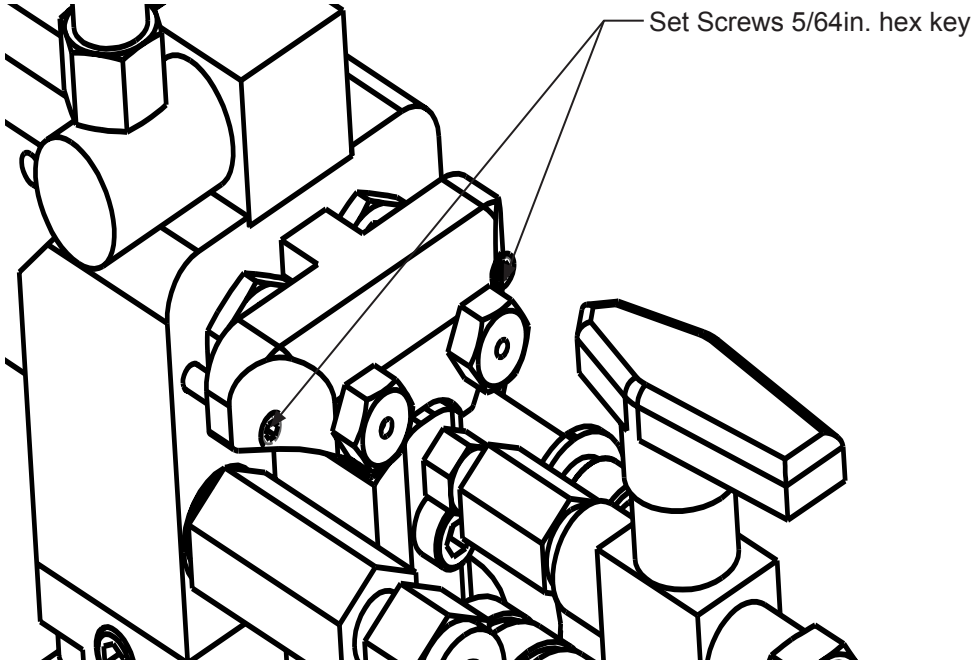


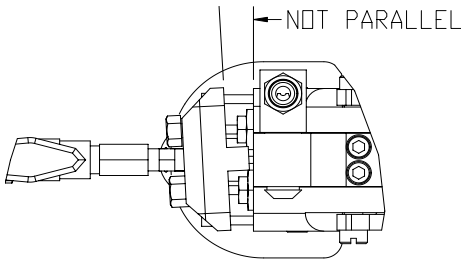
GUN SERVICE

Trigger & Needle Guard Readjustment Procedure

If you trigger the gun and notice that one needle is activating before the other and not parallel, fine adjustment is needed.

1. Using a 5/64in. hex key adjust the Set Screw which is NOT making gun pin contact when the gun is triggered. Turn the set screw until both needles activate at the same time. ***Making the needle guard parallel is very important, to prevent LAG-LEAD in the catalyst & resin mix.***

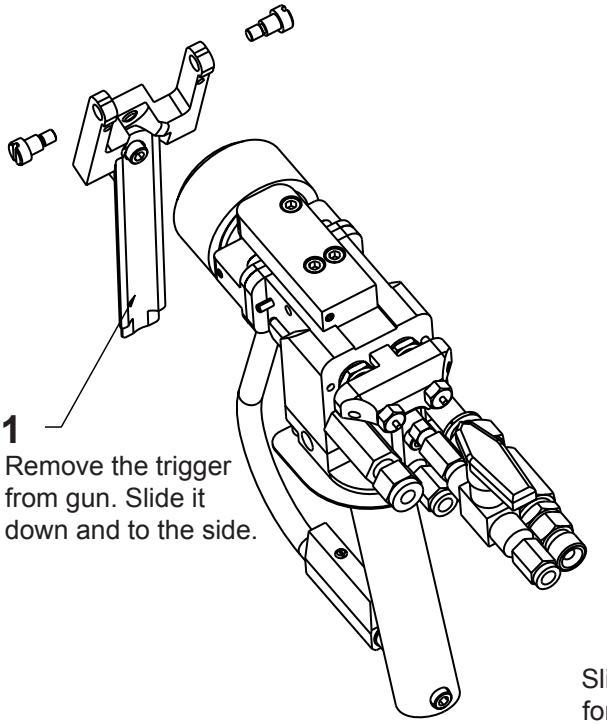




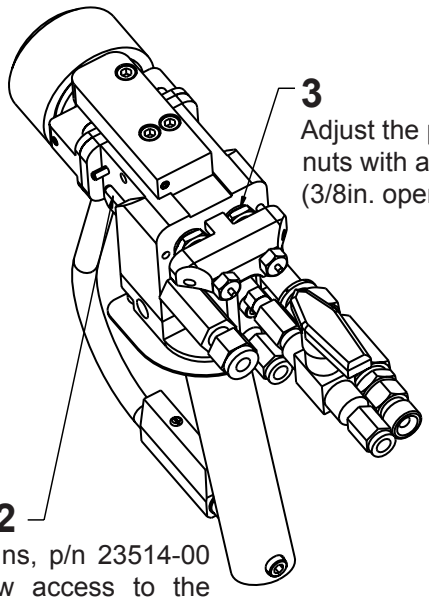
NOT OK

GUN SERVICE

Packing Nut Adjustment Procedure



1
Remove the trigger from gun. Slide it down and to the side.



2
Slide the gun pins, p/n 23514-00 forward to allow access to the packing nuts.

3
Adjust the packing nuts with a wrench. (3/8in. open end)

Notes

Limited Warranty Policy

GLASCRAFT, INC. ("GlasCraft") warrants to the original Purchaser of GlasCraft manufactured equipment and parts, that all GlasCraft manufactured equipment and parts will conform to their published written specifications and be free of defects in workmanship and material for a period of one (1) year from the original date of installation. GlasCraft makes no warranty to anyone other than the original Purchaser.

If any GlasCraft manufactured part or equipment is found to be defective in workmanship or material within the one-year period from the date of installation, as determined solely by GlasCraft, GlasCraft, in its sole discretion, will either repair or replace the defective part or equipment at GlasCraft's cost, including freight charges both ways, or credit or refund the purchase price for the defective equipment or part.

A warranty claim will be honored only when:

1. GlasCraft has been informed, in writing, of any such defect in workmanship or material within ten (10) days after discovery by the original Purchaser;

2. An official of GlasCraft has issued a return authorization number; and

3. The claimed defective equipment or part has been returned to GlasCraft by the original Purchaser, freight prepaid (with proper return authorization number(s) attached), to: GlasCraft, Inc., 5845 West 82nd Street, Suite 102, Indianapolis, IN 46278, U.S.A.

This warranty shall not apply to any equipment or parts that have been altered or repaired by anyone other than GlasCraft or to defects or damage resulting from improper installation, misuse, negligence, accident, or use not specified by GlasCraft. This warranty shall not apply to any equipment where any parts or components were replaced by any parts or components not manufactured or supplied by GlasCraft. The decision by GlasCraft shall be conclusive and binding on Purchaser.

GlasCraft does not warrant that any equipment or parts sold to Purchaser meet or comply with any local, state, federal, or other jurisdiction's regulations or codes. GlasCraft does not warrant that any equipment or part sold to Purchaser, when used individually or in concert with any other part, equipment, device, component or process, does not infringe on any patent rights of any third party. GlasCraft only warrants that it has no specific knowledge of any such infringement.

GlasCraft makes no warranty as to any parts or equipment manufactured by others. Purchaser shall look solely and only to the manufacturer of such parts or equipment with respect to any warranty claims. GlasCraft hereby assigns to Purchaser the original manufacturer's warranties to all such equipment and parts, to the full extent permitted.

THE AFORESAID WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. SPECIFICALLY THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH WARRANTIES ARE SPECIFICALLY DISCLAIMED.

GlasCraft shall not be liable for any loss or expense resulting from damage or accidents caused by improper use or application of materials manufactured or sold by GlasCraft or its distributors or agents.

UNDER NO CIRCUMSTANCES SHALL GLASCRAFT'S LIABILITY EXCEED THE AMOUNT PURCHASER PAID FOR THE CLAIMED DEFECTIVE EQUIPMENT OR PART. UNDER NO CIRCUMSTANCES SHALL GLASCRAFT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOST PROFITS.

No action arising from or relating to any goods manufactured by or purchased from GlasCraft may be brought more than one (1) year after the cause of action accrues.

Technical Assistance.....

Thank You for selecting GlasCraft spray equipment

Should you have any questions or need technical assistance, contact your factory authorized GlasCraft distributor.

Distributor: _____

Phone: _____

Contact: _____

For any issues your distributor cannot address, the GlasCraft technical service department is always available to assist you with the operation of your spray equipment. To help our technical representatives expedite your call and better address your questions, please have the following information ready and available when you phone GlasCraft.

*** If your questions are not urgent, You can e-mail all correspondence to service@glascraft.com**

Model: _____

Spray gun: _____
Serial number: _____

Material pump: _____
Serial number: _____

Catalyst pump: _____

Chopper: _____
Serial number: _____

Type of material: _____

Type of catalyst: _____

Catalyst percentage: _____

Air compressor size: _____
Compressor to system supply line: _____

Pressure at the system: _____

Main air line volume: _____

System gauge pressures

AAC pressure: _____

Atomizing air pressure: _____
(external mix)

Material pump pressure: _____

Solvent flush pressure: _____

For Your Reference

GlasCraft
DISPENSING EXCELLENCE

Date Purchased _____
Distributor _____
_____
Contact _____
Phone _____
E-mail _____

GlasCraft manufactures a complete line of FRP spray systems. If your application is in-plant or a field contractor - GlasCraft has a system package to meet your requirements.

FORMULA - INTERNAL & EXTERNAL MIX POLYESTER EQUIPMENT
CHOPPER & GELCOAT SYSTEMS

. NO NEEDLE IN THE SPRAY GUN
. INFINITELY ADJUSTABLE CATALYST PUMP

INDY - INTERNAL & EXTERNAL MIX EQUIPMENT

. LOWEST LEVEL OF EMISSIONS
. AUTOMATIC EQUIPMENT FOR ROBOT APPLICATIONS

SPARTAN - CLOSED MOLD / RTM EQUIPMENT

. HAND HELD & DELUXE MODELS
. PROGRAMMABLE CATALYST PERCENTAGES

SPECIALTY DISPENSE EQUIPMENT

. APD - HIGH VISCOSITY POLYESTER PUTTY DISPENSE
. RCD - RESIN / CATALYST DISPENSE
. PFR - PRESSURE FED ROLLERS

For more information concerning any of these GlasCraft products,
contact your local authorized GlasCraft distributor or visit www.glascraft.com

Quality and Performance…
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